

WHAT IS CLAIMED IS:

1. A prosthesis assembly for an aortic aneurysm comprising at least first and second members with an end portion of one member to be joined to an end portion of the other member portion when in and when expanded
5 within a lumen of a patient, wherein each member comprises a stent arrangement associated with a graft arrangement, wherein the end portion of one member has at least part of its stent arrangement on the inner surface of its graft, and wherein the end portion of the said other member has at least part of its stent arrangement on the inner surface of its graft.
- 10 2. An assembly according to claim 1, wherein the said one member has at least one stent on the outer surface of a further part or the remainder of the graft of the said one member.
- 15 3. A stent graft prosthesis member for use with the assembly of claim 2, wherein the member comprises at least one stent on one graft surface at one end portion thereof, and further comprises at least one stent on at least a part of the other graft surface which part is spaced longitudinally from the said one end portion.
- 20 4. An assembly according to claim 1, wherein the said other member has at least one stent on the outer surface of a further part or the remainder of the graft of the said other member.
- 25 5. A stent graft prosthesis member for use with the assembly of claim 4, wherein the member comprises at least one stent on one graft surface at one end portion thereof, and further comprises at least one stent on at least a part of the other graft surface which part is spaced longitudinally from the said one end portion.

6. A stent graft prosthesis assembly comprising at least first and second members to be located within and joined together within a lumen of a patient, wherein one member is to be initially located and expanded within the lumen, said one member having one end portion with one or more stents on the inner surface of the graft, wherein the other member is to be sequentially located within and expanded within the said lumen and has a second end portion to be located within the said one end portion, and wherein the said second end portion has a graft portion with at least one stent on the inside surface thereof, so that when the said one and said other end portions are in engagement with one another there is no stent material between the engaging portions.
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7. An assembly according to claim 6, wherein the said one member has at least one stent on the outer surface of a further part or the remainder of the graft of the said one member.
- 15 8. A stent graft prosthesis member for use with the assembly of claim 7, wherein the member comprises at least one stent on one graft surface at one end portion thereof, and further comprises at least one stent on at least a part of the other graft surface which part is spaced longitudinally from the said one end portion.
- 20 9. An assembly according to claim 6, wherein the said other member has at least one stent on the outer surface of a further part or the remainder of the graft of the said other member.
- 25 10. A stent graft prosthesis member for use with the assembly of claim 9, wherein the member comprises at least one stent on one graft surface at one end portion thereof, and further comprises at least one stent

on at least a part of the other graft surface which part is spaced longitudinally from the said one end portion.

11. A composite prosthesis adapted for deployment in a lumen, the prosthesis comprising a first substantially tubular prosthesis portion and a second substantially tubular prosthesis portion, wherein each prosthesis portion having a plurality of self expanding stents on an outer surface thereof along the length of each portion and at least one self expanding stent on an inside surface thereof at each end of each portion, each prosthesis portion having a connecting end adapted to engage with the connecting end of the other prosthesis portion and a remote end at the opposite end to the connecting end, each connecting end having the same outside diameter as the other connecting end, whereby in use the connecting end of the first prosthesis portion can be deployed either inside or outside the connecting end of the second prosthesis portion with at least two stents overlapping.
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- 15 12. A composite prosthesis as in Claim 11, wherein the second or distal prosthesis portion is a bifurcated graft having a body portion and two leg portions.
13. A composite prosthesis as in Claim 12, wherein the bifurcated second or distal prosthesis portion has a shorter leg and a longer leg and there is self expanding stents on the outside of the shorter leg and the inside of the distal end of the longer leg.
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14. A composite prosthesis as in Claim 12, further including at least one leg prosthesis portion adapted to be deployed in to either the longer or shorter legs of the bifurcated second or distal prosthesis portion or into the 25 end of the aortouni-iliac prosthesis.

15. A composite prosthesis as in Claim 11, wherein the first or proximal prosthesis portion is provided with a proximally extending self expanding stent including barbs to engage against the wall of a lumen to hold the graft in place.

5 16. A composite prosthesis for an aortic aneurysm adjacent to or including an aortic bifurcation, the prosthesis comprising a substantially tubular proximal prosthesis portion and a substantially tubular distal prosthesis portion, wherein each prosthesis portion having a plurality of self expanding stents on an outer surface thereof along the length of each portion
10 and at least one self expanding stent on an inside surface thereof at each end of each portion, each prosthesis portion having a connecting end adapted to engage with the connecting end of the other prosthesis portion and a remote end at the opposite end to the connecting end, each connecting end having the same outside diameter as the other connecting end, whereby in use the connecting end of the proximal prosthesis portion
15 can be deployed either inside or outside the connecting end of the distal prosthesis portion with at least two stents overlapping such that the either the distal or proximal prosthesis portion can be deployed first and the other prosthesis portion deployed so that its connecting end is within the
20 connecting end of the first deployed prosthesis portion.

17. A composite prosthesis as in Claim 16, wherein the second or distal prosthesis portion is a bifurcated graft having a body portion and two leg portions.

25 18. A composite prosthesis as in Claim 17, wherein the bifurcated second or distal prosthesis portion has a shorter leg and a longer leg and there is self expanding stents on the outside of the shorter leg and the inside of the distal end of the longer leg.

19. A composite prosthesis as in Claim 17, further including at least one leg prosthesis portion adapted to be deployed in to either the longer or shorter legs of the bifurcated second or distal prosthesis portion or into the end of the aortouni-iliac prosthesis.
- 5 20. A composite prosthesis as in Claim 16, wherein the first or proximal prosthesis portion is provided with a proximally extending self expanding stent including barbs to engage against the wall of a lumen to hold the graft in place.